

NWEA Assessment Item Illustrating 8.EE.C.7.b

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Domain: Expressions and Equations

8.EE.C: Analyze and solve linear equations and pairs of simultaneous linear equations.

Calculator Availability: No

Solve for x .

$$17 + 5(2x - 9) = 4 - 2x + 7$$

Enter the answer in the box.

Alignment: 8.EE.C.7b: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Solving algebraic equations is an important part of the grades 6–8 progression in algebraic thinking. Application of operations and fluency in solving equations are expectations in grade 8, and it is important that the equations students encounter include various forms of rational numbers, operations, and properties. In this item, the solution signals that both assessments and instructional materials are moving toward using grade-level-appropriate number systems. Thus, solutions to equations, as well as the constants and coefficients used in equations, may contain healthy doses of rational numbers—including, but not limited to, integers—without making the solution pathway needlessly tedious.

Coherence: The standards in cluster 8.EE.C build on the grade 7 fluency standard for solving equations of the form $px + q = r$, where p , q , and r are specific rational numbers.^{7.EE.A.4} Fluency in solving linear equations with a variety of number types prepares students for other grade 8 domain work, such as the application of the Pythagorean Theorem to solve real-world and mathematical problems in Geometry,^{8.G.B} as well as the use of linear models with bivariate data.^{8.SP.A.3} Students will draw upon this fluency in high school when reasoning with equations, such as when they will complete the square to solve quadratic equations^{HSA-REI.B.4a} and when they will create and solve equations to solve problems.^{HSA-CED.A.1}

Rigor: This item attends to procedural skill. Students use their knowledge of the distributive property and the process of combining like terms to solve the equation.

Answer Key:

Solve for x .

$$17 + 5(2x - 9) = 4 - 2x + 7$$

Enter the answer in the box.

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